United States Patent [19]

Harrison

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[54] **POSITION LOCATOR**

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[52] **U.S. Cl.**..... **235/150.27,** 33/355, 33/366, 73/178 R, 235/189

[51] **Int. Cl.** **G06g 7/78,** G01c 21/16

[58] **Field of Search**..... 235/150.2, 150.25, 150.27; 73/178, 432; 33/324–326, 355–357, 361, 366

[56] **References Cited**

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[57] **ABSTRACT**

A system for determining the course of travel of a carrier or wearer of an apparatus comprised of a pair of sensor arrays adapted to vectorially measure the earth's gravity and magnetic fields as well as the movement of the carrier which may be for example a human wearing the sensor apparatus on his leg. Analog signals representative of these vector quantities are fed to the system which includes vector operation circuitry for performing a double integration to determine the distance traveled in three coordinate directions corresponding to the orthogonal axes of the sensor apparatus while the sensor assembly is moving and thereafter performing a coordinate transformation to provide readouts corresponding to the North, East and vertcial coordinates when the sensor apparatus is stationary.

9 Claims, 10 Drawing Figures